EPIDEMIC PREPAREDNESS AND RESPONSE IN THE AFRICA REGION

A review of the Program in the WHO/AFRO/EMC West Africa and Great Lakes Epidemiological Blocks

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Executive Summary

Following a series of epidemics that occurred in the 1995-96 period in several countries in West and Central Africa, the World Health Organization (WHO) Regional Office for Africa (AFRO) and the USAID Bureau for Africa, Office of Sustainable Development (AFR/SD), decided to strengthen their cooperation on epidemic preparedness and response (EPR) throughout the continent. Many African countries lack drugs and other supplies for prompt and effective interventions to address epidemic outbreaks. Many country officials lack both awareness of the risk of epidemics and the capacity to effectively detect and manage them. In order to improve the situation, WHO/AFRO defined five groups of countries with similar epidemiological profiles, and created a political framework to facilitate inter-country collaboration within each of these epidemiological blocks. The Swiss Disaster Relief (SDR), the European Union (EU) and the U.S. Centers for Disease Control and Prevention (CDC) also joined the effort to strengthen capacity for EPR in West Africa.

Almost 4 years later, AFRO and AFR/SD decided to organize a review and documentation of the epidemic preparedness and response program. The present summary report contains the findings and recommendations of this review. The report presents the epidemiological block approach used by WHO/AFRO to implement its EMC programs, and discusses the performance of the epidemiological teams in the West Africa Block (WAB) and Great Lakes Block (GLB). It discusses the availability and use of data for assessing trends in incidence, mortality, and occurrence of outbreaks of epidemic-prone diseases, cholera and meningitis in particular. It concludes with a short discussion and recommendations for further efforts to strengthen capacities for epidemic preparedness and response in the Africa region.

Epidemics can quickly spread across borders, and prompt exchange of information from one country to the other can increase timeliness and effectiveness of interventions. The WHO/AFRO epidemiological block approach is an effective mechanism for strengthening the capacity for epidemic preparedness and response in countries of the Africa region. The various protocols for co-operation signed by the Ministers of Health and of Interior of the countries in each epidemiological block provide an essential political framework to implement the program.

In the few years of operations, the EMC teams in WAB and the GLB have provided valuable technical assistance to many countries in EPR. The program is starting to show some results in term of:

- timely detection and notification of outbreaks,
- publication on a regular basis of epidemiological bulletins at the sub-regional levels,
- increased availability of vaccines, drugs, and other supplies for quick reponse to initial cases, and
- strengthened laboratory capacity for the confirmation of epidemic.

In the WAB, biologists of national reference laboratories from 8 countries received training from the EMC team. A number of laboratory technicians have subsequently been trained in 10 countries in the WAB. In Uganda, an integrated disease surveillance (IDS) assessment was done in March 2000 followed by the development of a 5-year Plan of Action. The broad involvement of the MOH and the support of the GLB EMC team, the Institute of Public Health, CDC, and WHO made this a landmark event in public health in Uganda. An IDS committee is now in place and 10 districts have already been trained on improved surveillance system.

At least partially as a result of the EMC program, there is an increasing awareness of the feasibility to better control epidemic-prone diseases, and an increasing demand from Member

States for technical and financial support for EPR activities. African countries are at different stages of epidemic preparedness and response, and given the limited resources currently available for the EMC program and the high expectations from Member States, WHO/AFRO needs to increase its advocacy, collaboration and resource mobilization efforts.

With the understanding that various partners may support the implementation of the EMC program, the reviewers request that DDC:

1. Strengthen the capacity of the EMC teams by:

    - Improving the planning process of the EMC program.
    - Increasing the technical support from DDC and HQ.
    - Providing administrative and budget support for local operations of EMC teams.
    - Improving contractual arrangements offered to EMC staff..

2. Improve selected aspects of the main EMC strategies by :

    - Conducting secondary analyses of the notification data collected in the epidemiological blocks and regional offices.
    - Creating and maintaining a database on outbreaks.
    - Developing and disseminating an EPR-specific strategy for laboratory strengthening
    - Developing scores of risk of epidemics for use at the country and district levels.
    - Developing standard analyses of epidemic-prone disease surveillance and notification data.
    - Preparing and disseminating sustainable emergency stock policies and management plans.
    - Continuing the assessment and strengthening of communication systems in districts at high risk of epidemics.
    - Offering exchange visits, study-tours, and consulting opportunities to country nationals in charge of EPR..

3. Engage in active resources mobilization for EPR by:

    - Preparing a strong and specific 5-year EPR strategic plan for the Africa region.
    - Developing a resource mobilization plan and contacting additional partners and donors.

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Acronyms

AFR/SD	USAID Bureau for Africa, Office of Sustainable Development
AFRO	World Health Organization Regional Office for Africa
AMREF	Association
BPOA	Biennal Plan of Action
CDC	Centers for Disease Control and Prevention
DPC	Disease Prevention and Control
DDC	WHO/AFRO Division of Communicable Disease Prevention and Control
DFID	United Kingdom Department of International Development
DPC	Division Prevention and Control
EMC	Emerging and other Communicable Diseases
EPI	Expanded Program on Immunization
EPR	Epidemics Preparedness and Response
EU	European Union
GLB	Great Lakes epidemiological block
HQ	WHO Headquarters
ICP	Inter-country program
IDS	Integrated Disease Surveillance
NORAD	Norwegian Aid Agency
SARA	Support for Analysis and Research in Africa
SDR	Swiss Disaster Relief
STP	Short-Term Professionals
UEMOA	Union Economique et Monétaire Ouest Africaine
UNF	United Nations Foundation
USAID	U.S. Agency for International Development
VHF	Viral Hemorrhagic Fever
WAB	West Africa epidemiological block

I. Background

A. Introduction

Following a series of epidemics that occurred in the 1995-96 period in several countries in West and Central Africa, the World Health Organization Regional Office for Africa (WHO/AFRO) and the USAID Bureau for Africa, Office of Sustainable Development (AFR/SD), strengthened their cooperation on epidemic preparedness and response (EPR) throughout the continent. AFR/SD focussed its support at the levels of the AFRO Division of Communicable Diseases Prevention and Control (DDC). With an initial grant of $1 million in 1996 and subsequent grant amendments totaling $3.5 million in 1999, AFRO strengthened the regional unit of its Emerging and other Communicable Diseases Surveillance and Control (EMC) program, and established inter-country technical support teams in West Africa, the Great Lakes, and Central Africa epidemiological blocks.[1] The European Union (EU), the Swiss Disaster Relief (SDR), and the UK Department of International Development (DfID) have also contributed to the EMC program. In 1998, AFRO launched the Integrated Disease Surveillance (IDS) program, which includes all the epidemiological surveillance aspects of the EMC program, and AFR/SD began covering this newly established program in 1999. Through an agreement with AFR/SD, CDC has provided short- and long-term technical assistance to the EMC and IDS programs.

B. Purpose and Objectives

Almost 4 years after the first grant, AFRO and AFR/SD decided to organize a review and documentation of this epidemic preparedness and response program. Dr. Marc Debay of The Johns Hopkins School of Public Health and Dr Sambe Duale of the Tulane University School of Public Health and Tropical Medicine, hereinafter the reviewers, conducted this three-week review through the USAID-funded Support for Analysis and Research in Africa (SARA) Project. Their scope of work was to:

- Describe the process used to establish the epidemiological block teams;
- Assess the level of satisfaction with the terms of reference of the teams in the West and the Great Lakes blocks;
- Assess the linkages between the EMC and the IDS activities at regional and country levels;
- Analyze activities conducted by the sub-regional technical support teams at country level in the context of actual epidemic outbreaks;
- Review the sustainability of epidemic preparedness mechanisms at country level;
- Document and discuss trends in epidemic outbreak occurrences and quality of responses; and
- Assess the level of satisfaction obtained by countries from the existence and actions of the inter-country teams.

The expected output of the review was a report that would describe the major activities of the EMC teams; document the results of their efforts at regional and country levels on epidemic preparedness and response in Africa with both narrative and quantifiable data; discuss major lessons learned; and provide recommendations for sustainable efforts to address epidemic outbreaks in Africa.

[1] The "epidemiological block" approach of the EMC program is explained in section II.

C. Methodology

The following methods were used during the review mission:

- A review of documents and reports obtained from AFR/SD, AFRO/DDC, the two epidemiological block teams in Abidjan and Kampala, and country level partners (see list of selected documents in Appendix A);
- Meetings and discussions with MOH officials and program managers at the central and district levels, WHO Representatives and selected staff, and other stakeholders in three countries (Côte d'Ivoire, Guinea, and Uganda),
- Field visits in Rakai District in Uganda, especially in the sub-district of Kyotera where an upsurge of malaria has been observed; and in Focaderiah in Guinea, where an epidemic dysentery outbreak had just been documented.

Dr. Debay traveled to Harare to receive a briefing from the Director and the EMC and IDS Technical Advisors of WHO/AFRO/DDC. Both Drs Debay and Duale traveled to Abidjan to meet with the team of the West Africa epidemiological block, and to Kampala to meet with the team of the Great Lakes epidemiological block. In addition, they conducted site visits in three countries: Guinea and Côte d'Ivoire for West Africa, and Uganda for the Great Lakes region. WHO/AFRO facilitated the fieldwork by making all necessary arrangements with the EMC teams, WHO representatives, and country focal points. A travel itinerary is in Appendix B, a list of people met in Appendix C, and the exit reports from the visits in Guinea and Uganda in Appendix D.

The present report contains the findings and recommendations of this review. Section II begins with an historical and global perspective on the WHO communicable disease control program, and that of AFRO in particular. Section III presents the epidemiological block approach of the AFRO/EMC and IDS programs, and section IV the performance of the epidemiological teams in the West Africa Block (WAB) and Great Lakes Block (GLB). Section V discusses the availability and use of data for assessing trends in incidence, mortality, and occurrence of outbreaks of epidemic-prone diseases, and of cholera and meningitis in particular.

II. The WHO/AFRO EMC program

A. Historical and global perspective

The WHO/Headquarters (HQ) Emerging and other Communicable Diseases Surveillance and Control (EMC) program began in 1995 to support the new global framework for communicable disease control (WHO 1996). The global EMC program is now a component of the Department of Communicable Disease Surveillance and Response. Table 1 below lists the goals and strategies of this program. The unique position of WHO in implementing these strategies comes from its role in global information exchange, the mandate it receives from the WHO member states (WHA 48.13), its in-country presence through the WHO representatives, and its links with collaborating centers and experts world-wide.

Table 1. Global goals and strategies of the WHO Emerging and other Communicable Diseases program - 1996-2000

I.	**Strengthen the global surveillance of communicable disease**
	International health regulations
	Monitoring of antimicrobial resistance
	* Monitoring of viral and bacterial diseases, including zoonoses
	Dissemination of information
II.	**Strengthen the national and international infrastructure necessary to recognize, report, and respond to emerging communicable diseases**
	* Assessment and strengthening of diseases surveillance systems
III.	**Strengthen the national and international capacity for the prevention and control of communicable diseases**
	Promotion of communicable and zoonotic disease surveillance and control
	** Epidemic preparedness and control
	Immunology, vaccinology, biotechnology and biosafety as applied to communicable diseases
IV.	**Support and promote research in communicable disease control**
	* Operational research for surveillance and disease control
	Research on field diagnostic techniques

Source: WHO 1996.
Note: The WHO/AFRO EMC program focuses on epidemic preparedness and control (**) and a few other related (*) strategies.

In the Africa region, the EMC program has a particular focus on the epidemic preparedness and control strategy. In 1993, WHO/AFRO had developed a regional strategy for epidemic preparedness and response, including strengthening of epidemiological surveillance, which was adopted as a framework for cooperation by all African member states (AFR/RC43/R7). In 1998, the 48th Regional Committee (RC48) adopted Resolution AFR/RC48/R2 on Integrated Disease Surveillance (IDS): a Regional Strategy for Communicable Diseases 1999-2003. This strategy includes seven epidemic-prone diseases (cholera, bacillary dysentery, plague, measles, yellow fever, meningococcal meningitis, and viral hemorrhagic fever-VHF) among the 18 priority diseases or syndromes proposed for integrated surveillance.

B. The Integrated Disease Surveillance Program

The adoption of the IDS strategy at the regional level was followed by the creation of a specific IDS program and unit within WHO/AFRO/DDC to coordinate surveillance activities of the various disease control programs of this division. The EMC program maintains a focus on epidemic preparedness and response, however all the related surveillance activities are developed within the IDS program. This situation creates some confusion in the use of the terms EMC, IDS, and EPR, since the global WHO/HQ EMC program includes epidemic-prone diseases and all other communicable diseases surveillance. At the level of DDC, there are two distinct and closely linked programs, the AFRO/DDC/EMC and the AFRO/DDC/IDS programs.[2]

C. Funding of the EMC and IDS programs

The EMC and IDS programs are primarily funded through extra-budgetary funds. In the AFRO Biennal Plan of Action 2000-2001, the regular budget for the entire Area of Work Communicable

[2] Hereinafter, these two AFRO/DDC programs will be called the EMC and the IDS programs.

Disease Surveillance and Response is about 11.5% of the entire budget of 23,251,000 USD. Table 2 shows illustrative extra-budgetary contributions from various partners to the EMC and IDS program.

Table 2 Illustrative contributions of various partner agencies to the AFRO EMC and IDS programs

Agency	Budget(US$)	Period	Main activities
NORAD	0.6 M	1997-1998	1 epidemiologist and 1 administrator at AFRO regional office
EU		1998-1999 (18 months)	1 epidemiologist in WAB and technical assistance from Epicentre
DFID	1.3 M	1998-2000	Mainly support to Horn of Africa
SDR	0.2 M		Support to WAB (before USAID)
USAID EMC IDS	4.5	1996-1999	 Mainly 2 EMC teams in WAB and GLB, and support to AFRO regional office Mainly support to AFRO regional office
UNF	3.0 M	2000-2002	IDS in 4 countries (Burkina Faso, Mali, Guinea, and Côte d'Ivoire)

AFR/SD has been awarding grants to DDC since 1993 and supporting epidemic preparedness and response since 1996. A total of $4,567,248 dollars was awarded between 1996 and 1999 to support the EMC and IDS programs. Beginning in 1999, the annual award was split between the EMC and IDS programs. AFR/SD also provided grants to CDC for technical assistance to AFRO EMC and IDS programs.

As important as activities at the regional and subregional levels may be, most funding for EPR is needed at the country level. For instance, training of trainers is typically done at the regional or subregional levels but needs to be followed by training large numbers of health workers at country level before any impact on the incidence and mortality of epidemic-prone diseases can be expected. Similarly, the development of guidelines must be followed by the reproduction and distribution to large numbers front line health workers. Following a memorandum from the AFRO Regional Director, all WHO country offices allocated part of their budget to EPR/IDS activities. These usually relatively small amounts are primarily used for advocacy, contingency stocks, and to support outbreak investigation. Other resources must come from national governments, donors, non-governmental organizations, and communities.

D. Generic strategies and activities

One of the strengths of the EMC program is that it is based on Protocols of Cooperation between Member States and the related mandate of AFRO to provide assistance in epidemic preparedness and response. These protocols vary somewhat from one epidemiological block to the other, but are all structured around four main strategies whose rationale is summarized below:

1. Epidemiological surveillance

Early detection of epidemics at the health center and district level is critical for timely and effective responses. Appropriate and updated technical guidelines must be developed and distributed for use at the peripheral level. Simple tools for data collection, analysis, and transmission must be in place. Health workers must be competent and motivated, and have access to communication systems for timely transmission of critical data.

2. Laboratory strengthening

Early confirmation of the pathogens is also critical for timely and effective responses to epidemics. Laboratories at the peripheral level must have the appropriate equipment, reagents, and transport media for specific diagnostic and antimicrobial resistance tests. Laboratory technicians must be competent and motivated. Laboratory networks must be established for quality control purposes and to increase availability of selected specialized tests.

3. Epidemic preparedness and response

Early and adequate response is critical to maximize intervention effectiveness. Appropriate clinical and other standards and guidelines must be available where needed. Appropriate supplies, logistics, and funds must be available and rapidly mobilized, and active social mobilization is often required. Finally, sound management of responses to epidemics, including evaluation after their containment, is necessary to further strengthen the capacity for preparedness and response and for preventive interventions (immunization, vector control, or sanitation and water supply).

4. Inter-country cooperation

Protocols of cooperation between Member States are necessary to adopt priority areas of interventions and standardized policies, facilitate exchange of information and expertise, and effectively organize cross-border meetings and interventions. Member States also can mandate WHO to establish inter-country technical teams to coordinate activities, exchange of resources, and international support within defined epidemiological blocks.

Table 3 presents the main activities that each organizational level (regional, sub regional, and country) of the EMC program supports under each of the four main strategies. Overall, the regional level develops guidelines and provides planning and coordination support to the five epidemiological blocks. The technical assistance teams of the epidemiological blocks build the capacity of the WHO country offices and their MOH counterparts, facilitate cooperation between neighboring countries, and ensure effective exchange of information between countries and at the regional (AFRO) and global (HQ) levels. At the country level, the WHO officers and their MOH counterparts implement the various EPR and IDS strategies.

Table 3. Generic activities of the EMC program by strategies at the regional, epidemiological block, and country levels.

Strategy	Organizational level		
	Regional (AFRO/DDC)	**Sub regional (Epidemiological blocks)**	**Country (WHO offices or MOH)**
1. Epidemiological surveillance	--Development of guidelines --Planning and coordination, resource mobilization --Regional database	--Technical assistance to countries --Training of trainers --Networking and information dissemination --Sub-regional databases	--Adaptation of guidelines --Training at the district level --Collection, analysis, and transmission of surveillance data
2. Laboratory Strengthening	--Development of guidelines --Planning, coordination, resource mobilization	--Training of trainers --Networking among reference laboratories	--Strengthening laboratories at district and health center levels --National laboratory networks
3. Epidemic preparedness and response	--Interventions standards and guidelines --Planning and coordination, resource mobilization --Regional security stocks: policies, supply to sub-regions	--Technical assistance for development of national EPR plans, outbreak investigation, evaluation of response, and other --Sub-regional security stocks: management, supply to countries	--Development and adoption of national EPR plans --Establishment of security stocks and budget lines, epidemic management committees, rapid interventions units --Social mobilization --Implementation of interventions --Resource mobilization
4. Inter-country cooperation	--Regional policies and meetings --Planning and coordination --Technical support and supervision of ICP teams	-- Development and update of Protocols of Cooperation --Exchange of information --Cross-border meetings and interventions	--Systematic exchange of surveillance information --Cross-border collaboration

The latter part of the report is organized according to the classification of activities used in Table 3.

II. The EMC epidemiological blocks

A. Rationale for the epidemiological block approach

The Africa region comprises 49 Member States and about 663 million inhabitants. After the decision to eliminate sub regional offices in the early 1990s, AFRO created inter-country program (ICP) technical teams to maintain adequate technical support to all the country offices and Member States. These teams assist the regional office through more direct and frequent contacts with a smaller number of country offices. Inter-country teams were first assigned to the Expanded Program on Immunization (EPI), and then to other programs such as malaria, reproductive health, HIV/AIDS, and EMC.

Specific challenges to epidemic preparedness and response in the Africa region amply justify establishing sub regional inter-country teams for the EMC program:

- Communicable diseases epidemiology varies widely within the Africa region, yet similarities often exist between neighboring countries. Standardization of policies, tools, or procedures among countries with similar epidemiological profile can increase response effectiveness.

- Epidemics can quickly spread across borders, and prompt exchange of information from one country to the other can increase timeliness and effectiveness of interventions. Given the communication problems that continue to exist across the continent, a sub regional organization specialized in epidemic preparedness and response can facilitate these exchanges of information.

- Epidemic preparedness and response sometimes requires specific expertise (laboratory; epidemiology) or supplies (yellow fever and meningitis vaccines; second line antibiotics) that cannot effectively be managed by individual countries. The availability of such specialized expertise and supplies at the sub regional level makes it more readily accessible to countries in need.

- Many countries lack drugs and other supplies for prompt and effective interventions. Many country officials lack both awareness of the risk of epidemics and the capacity to effectively detect and manage them. This is particular true in countries in political or natural distress where the lack of basic infrastructure makes it difficult to build this capacity. A specialized sub regional organization can provide rapid technical assistance and organize effective relief to the population of such countries.

To take advantage of these opportunities to strengthen the capacity for epidemic preparedness and response in the African region, AFRO defined five groups of countries with similar epidemiological profiles, and created a political framework to facilitate inter-country collaboration within each of these epidemiological blocks. Member States agreed on priority diseases for interventions and on a Plan of Action, and mandated AFRO to establish technical support teams (hereinafter, the EMC teams) in each epidemiological block. Table 4 presents the individual countries, their total population, the major epidemic-prone diseases under consideration, and specific aspects of the protocols of cooperation in each epidemiological block. A map of the epidemiological blocks is in Appendix E of this report.

Table 4. Composition and characteristics of the five EMC epidemiological blocks

Epidemiological block	Countries	Epidemic-prone diseases included	Protocol of Cooperation
West Africa 17 countries Total population: 256 million	Algeria, Benin, Burkina Faso, Cape Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo	Cholera, Meningitis, Yellow Fever, Measles, Shigellosis, VHF	Signed October 1996.
Great Lakes 4 countries Total Population: 112 million	Burundi, D. R. Congo Rwanda, Tanzania, Uganda	Cholera, Meningitis, Yellow Fever, Shigellosis, Measles Malaria, VHF Plague, HIV/AIDS, Poliomyelitis, Typhus	Signed August 1997. Includes Polio Eradication
Horn of Africa 6 countries Total population: 90 million	Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan	Cholera, Meningitis, Measles, Plague, Leishmaniosis	Signed 1998.
Central Africa 8 countries Total population: 83 million	Angola, Cameroon, CAR, Chad, Congo, D.R. Congo, Equatorial Guinea, Gabon, Sao Tome & Principe	Cholera, Meningitis, VHF, Yellow Fever, Shigellosis, Trypanosomiasis, Monkeypox	Signed July 1998. Includes Polio Eradication.
Southern Africa 14 countries Total population: 122 million	Angola, Botswana, Comoros, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Zambia, Zimbabwe	Cholera, Meningitis, Malaria, Shigellosis, Plague, Rabies, Anthrax, VHF, Influenza, Dengue	Signed June 1999. Includes Polio Eradication. Reflects IDS.

A first test of an inter-country team approach to epidemic preparedness and response was established for Southern Africa in 1993 as a joint WHO, USAID, SDR and CDC initiative, that is, before the onset of the EMC program. As part of the Cholera and Dysentery Prevention and Control project, two epidemiologists managed this project that initially covered four countries, but ended up covering 14 countries by 1997. The success of the project led a joint review team to recommend its continuation with a greater emphasis on laboratory strengthening and the inclusion of other epidemic-prone diseases (Lazare, 1997). This inter-country team slowly shifted its work from cholera prevention and control to epidemic preparedness and response.

In West Africa, a team of epidemiologists was first established in late 1995 to strengthen the capacity of the countries at risk of meningitis to detect and respond to future outbreaks. The protocol of collaboration later established in 1996 between 18 Member States extended the scope of this inter-country team to include cholera, yellow fever, measles, and viral hemorrhagic fevers. The inter-country team was formally established following the signing of the Co-operation protocol. With support from USAID, CDC, SDR, EU and EPICENTRE, the EMC team in the West Africa epidemiological block (WAB) began its activities on a full scale in 1997. The EMC team in the Great Lakes epidemiological block (GLB), established primarily on the basis of

dramatic epidemics of cholera and dysentery that occurred in the region in 1994 and thereafter, began its activities in 1998. The EMC inter-country teams in Central Africa and the Horn of Africa epidemiological blocks were established in 1998, and in 1999 in Southern Africa.

B. Organization and terms of reference of the EMC teams

The current organizational chart of the EMC program is placed in Appendix F. At the regional level, the program includes one Regional Technical Advisor, two epidemiologists, one training specialist, and a secretary. At the sub regional level, an EMC team is typically composed of one or two epidemiologists, one laboratory specialist, and one secretary. The IDS program has a similar set of positions at the regional level, but relies on the EMC and Polio staff at the level of the epidemiological blocks.

All the EMC and IDS positions are funded through extra-budgetary sources. The staff works under short-term professional (STP) contracts. This type of contract offers a maximum of 11 months of employment at a time. At the end of that period, the contractor must submit an end-of-contract report and return to his home country regardless of whether a new contract is offered. In many instances, contractors leave their post without knowing whether a new contract will be offered and spend several months before coming back and resuming their functions.

The terms of reference of the EMC teams (see Appendix G) were last discussed and approved during a DDC retreat in 1998, the same time the IDS program was established. They are consistent with Protocols of Cooperation developed in 1996 for the West Africa Block, and have a clear focus on epidemic preparedness and response. They also specifically refer to the regional strategy on integrated disease surveillance that applies to both EPR and IDS activities. The currently shifting emphasis of the work of the EMC teams from EPR towards IDS therefore remains compatible with their terms of reference.

All the priority actions included in the terms of reference of the EMC teams are adequately addressed by the current staff. Two observations can be made, however. First, there seems to be scant attention[3] "to support countries in the preparation of their epidemiological profile including mapping of the epidemic-prone zones. Although this is a major undertaking, it would help both the design and evaluation of the EMC program at the regional and country levels. Second, there does not seem to be systematic technical reports and feedback between the EMC epidemiological block teams and the AFRO office, except for the end-of-contract report that each STP must submit at the end of the 11-month contract. These are valuable and informative reports that could use to enhance planning and technical feedback.

For the technical aspects of their work, the sub regional EMC teams are under the responsibility of the Director of AFRO DDC, who is assisted by EMC and IDS regional advisors. The WHO Representatives (WR) of the country where the teams are based are responsible for their administrative, logistic, and management support. As the number of inter-country team members has increased over the last few years, this may take up to 50% of the time of the host WRs. In Abidjan, for instance, there were 3-5 ICP officers in 1995 and about 20 in 2000. Though, many positions are funded through the Polio Eradication program, staff is sometimes used to support other programs as well. For instance, the data managers of the Polio Eradication programs in both the WAB and GLB manage the EPR and IDS data, and publish related analyses and outbreak reports in various regional and sub regional epidemiological bulletins.

[3] Except for Benin, Mali, and Togo for which "epidemiological profile" documents have been prepared by the EMC team.

In both the WAB and GLB, the host WR strives to organize and coordinate the work of the all the ICP teams. The WR in Abidjan plans to call regular meetings with all ICP officers, and involve the various partners in Abidjan such as African Development Bank, World Bank, UNICEF, etc. He has also planned to include EPR and IDS in the agenda of a meeting of all WRs in the subregion Although there are no clear budgetary instructions provided for the WRs in regards to the EMC team local office, it is There is no clear instruction given to the WRs about the budget for the EMC team local office. The WHO country office regular budget can accommodate the operations of the team provided that adequate extra-budgetary funds are available for their technical assistance activities and travel.

At the country level, the inter-country EMC teams typically work with the Disease Control and Prevention (DPC) officers of the WHO office, and with the Division of Disease Control or equivalent within the MOH. In terms of surveillance activities, EMC and IDS usually have different counterparts in the MOH since most countries have a separate unit for EPR. The WHO country office facilitates the contacts with the MOH, advocates for EPR activities, and funds selected activities. In Guinea, for instance, the WHO/MOH Plan of Action includes $8000 for EPR drugs and $2000 for related transportation and per diem costs. In Côte d'Ivoire, the PAO includes part of the cost of the IDS assessment planned for the near future.

C. The planning process

As indicated earlier, the Protocols of Cooperation constitute the primary basis for planning the EMC team activities. This definitely is the strength of the program because it creates ownership and encourages participation by the Member States, and because it gives legitimacy to the EMC teams. These Protocols, however, at least at the beginning of the EMC program and in West Africa in particular, were primarily geared to address epidemic preparedness and response. Therefore they do not appropriately represent the current and probably future IDS activities of the EMC teams. Also, the Plans of Action resulting from the Protocols of Cooperation are typically prepared for the countries themselves, and are too broad to be used as a planning tool by the EMC teams.

The EMC teams actually prepare their own annual work plans, and then submit to their host WR and to DDC. It appears from discussions with WAB and GLB teams that these work plans are indeed based on their respective Protocols of Cooperation and related Plans of Action, but there is no clear relationship between these documents. None of them includes any narrative description or justification of the activities, and objectives or indicators are listed but with no mention of data sources, baseline figures, or targets.

In 1998, the EMC unit organized a meeting during which a six-month work plan was prepared with the WAB team. In January 1999, a one-day EMC meeting was organized after the overall ICP meeting at AFRO, but the action plans were not specifically discussed. In January 2000, a similar one-day side meeting was organized for EMC and the work plans of the various EMC teams were jointly discussed for the first time.

There is no overall AFRO strategy for EMC or EPR in Africa except for what is included in the related sections of the Biennial Plan of Action (BPOA) 2000-2001, Area of Work of Communicable Disease Surveillance and Response. This document does not provide an explicit EMC regional strategy, but clearly relies on related global WHO strategies and technical guidelines. As this plan was prepared in 1999, that is, at a time where the IDS program was only beginning, it does not include the full spectrum of IDS activities. The proposed objectives and

activities focus on epidemic preparedness and response. It also includes surveillance activities for non epidemic-prone disease control program such as polio, tuberculosis, Buruli ulcer, guinea worm, etc. All the activities listed are quite general in the sense that they refer to number of countries or to the Africa region as a whole. Here again, there is no clear relationship, such as common objectives and related indicators, between the BPOA and the EMC teams work plans.

Given the nature of the work, which is at least partially to provide services in case of emergencies, the work plan of the EMC team is easily disrupted by unplanned and often urgent requests from countries. In addition to potential assistance and relief, prompt and adequate responses to these urgent requests provide the EMC teams with opportunities to interact with countries and areas at risk of epidemics and to strengthen preparedness. The EMC teams therefore have to build into their work plans a sound balance between planned activities to build in-country capacity for preparedness and response, and unplanned responses to urgent requests.

D. Links between the EMC and IDS programs

The double mandate of the EMC teams in terms of activities related to the EMC and the IDS programs was mentioned in the discussion of their terms of reference in section C above. As the EMC program still finances all the positions in the EMC epidemiological blocks, the EMC teams tend to primarily report to the head of the EMC rather than the IDS unit, and to give priorities to EMC rather than IDS activities. Conversely, the IDS unit may have more difficulties than the EMC unit to obtain commitment and adherence to its program by the EMC teams. Even though the IDS and EMC units work collaboratively on the implementation of their respective programs, the overlapping areas of responsibilities occasionally create confusion among the EMC and IDS staff.

Soon after the adoption of its overall strategy in 1998, the IDS program began the preparation of technical guidelines. Many related AFRO guidelines were compiled and updated in a user-friendly format for use at the district level. The guidelines are being prepared by CDC with technical inputs from all DDC programs, especially the IDS and EMC programs. Although all the aspects of surveillance of epidemic-prone diseases, including identification of appropriate responses, are well addressed in these guidelines, the organization and implementation of the epidemic preparedness and response themselves are less or not covered. The latest draft of the guidelines is very promising.

E. Level of satisfaction of EMC teams

All the EMC team members are well qualified and experienced for the assigned tasks, and are performing well. The reviewers have identified a series of structural problems that may impede performance and satisfaction of the teams:

- The strict short-term nature of the contract (11 months, and the requirement to leave the position for one month before beginning a new follow-on contract, if any) creates major delays and gaps in services. It also creates short-term vision for the work, constant uncertainty, and frustration for the EMC team members.

- The lack of prompt technical support and feedback from AFRO or HQ creates delays in the implementation of the activities and maybe some inadequate decisions or actions. Some EMC team members never had any complete briefing or supervisory visits from AFRO after more than a year of employment.

- The EMC teams sometimes have difficulty communicating with WHO offices and counterparts in the MOH and obtaining clearance for their proposed country visits.

- Some uncertainty about their accountability to the EMC versus the IDS program sometimes creates tension among EMC team members.

The reviewers assessed the perception of EMC teams by the WR offices and the country counterparts during their various visits and meetings. In Guinea, the WAB team is recognized as a good technical resource for training, supervision, technical assistance, evaluation, advocacy, etc. In Côte d'Ivoire, the EPR staff in the MOH recognizes the WHO office and the WAB team as main partners for EPR, even though many others partners exist such as the World Bank, PASE, UEMOA, RetroCI, UNICEF, Red Cross, MSF, etc. In Uganda, the EPR staff in the MOH recognizes the valuable technical assistance of the GLB team for training of trainers and for coordination with DFID, UNICEF, USAID, and others partners.

III. Performance of West Africa and Great Lakes EMC teams

This section discusses the performance and results of the WAB and GLB teams. A summary table in Appendix H displays the main activities conducted and results achieved to date by countries in the two epidemiological blocks, and by main EMC strategies. The information in the table was provided by and discussed with the WAB and GLB team members. It provides a useful overview of the program but has obvious limitations:

- The events or situations have occurred at any time within the last four years (1996-99 for WAB and 1998-99 for GLB). Therefore, the information does not reflect change in the activities or results assessed. For instance, the information may also be outdated, as in the case of a laboratory assessment conducted in 1996, which was no longer relevant in 2000.

- The assessments were made quite intuitively, without well-defined criteria to determine whether a country had received a support or achieved an intended result.

- The analysis of the activities conducted by country does not necessarily give an accurate picture of the coverage and potential impact of the program because population size varies widely. One training-of-trainers workshop would not have the same impact on health services preparedness in Nigeria as in Togo.

Nevertheless, the information in Appendix H addresses the full scope of the EMC program and activities, identifies issues worthy of further investigation or documentation. It constitutes a useful framework for the discussion that follows. Specific illustrative results at the country level are also provided. Most come from observations made by the reviewers during their site visits in Guinea and Uganda; others from the various reports and documents collected during their mission. These specific examples are clearly identified[4] from the remaining text to highlight the fact that they may not necessarily be direct results from EMC program, or that they may not be representative of EMC program in other countries.

A. Epidemiological surveillance

(1) Training

Training of health workers was one of the first activities that the WAB and GLB teams undertook. The training covered epidemiological surveillance and management of epidemics at the district level. The training materials were based on 6-day modules developed by WHO/AFRO in 1996. All countries in the WAB[5] and GLB received support from the EMC teams to conduct a training of trainers workshops. The WAB and GLB teams estimate that 11 of 17 countries in the WAB and all countries in the GLB had trained at least one staff member in at least 50% of the districts by the end of 1999 (Appendix H). In 7 of 21 countries in the WAB and GLB, the staff trained has been supervised either by EMC team members or by their MOH counterparts. Even though there is still a large demand and need for EPR training, all training activities have now been stopped until the IDS technical guidelines and related training materials are completed and the IDS training can begin.

[4] Each of these examples is prompted as "***RESULT."
[5] Except Algeria.

***RESULT: In Guinea, a national training plan was developed following the Ouagadougou meeting in 1996 to train up to 1200 persons, primary at the district and health center level. So far, a total of 197 people have been trained in 30% of the districts in Guinea. Staff at the health center and district levels is trained in the detection and confirmation of cases of epidemic-prone diseases and is able to begin response to confirmed outbreaks. They report on a weekly basis on specific diseases from health centers upwards. At the national level the Division of Prevention and Control, which manages the Epidemiological Surveillance and Early Warning System separately from the remaining of the health information system, only uses the data to confirm, record, and report trends.

***RESULT: In Uganda, all district and 50% of the health centers have been trained in EPR. In addition, 5 districts are followed up on a monthly basis. The MOH considers that this follow up has led to a major improvement in detection and response capacity of these districts.

***RESULT: In Uganda, the Rakai District Health Management Team recently detected and investigated of an upsurge of malaria, and began a community-based distribution of chloroquine. The MOH Epidemic Surveillance Division then confirmed the epidemic, and was able to quickly send free injectable quinine.

(2) Communication

One of the main results of the presence of an active team of experts in epidemic preparedness and response at the sub regional levels is to improve communication and exchange of information between countries, and between countries and AFRO. This has been achieved through several mechanisms:

- Follow-up and feedback through the notification reporting systems
- Informal communication through email, phone, fax, website, country visits, meetings, etc.
- Technical assistance visits (assessment, planning, outbreak investigations and evaluation, etc)
- Inter-country and cross border meetings
- Provision of computers and Internet and email access to the DCP in the WHO offices and sometimes their counterparts in the MOH.
- Epidemiological bulletins published and disseminated at the sub regional and regional levels. These bulletins cover EPR and IDS and epidemiological information from other DDC programs. They are very promising mechanisms for sharing information and experience among professionals within and between countries, although their preparation requires a lot of time from data managers, epidemiologists, writers, and publication specialists to ensure regular and timely dissemination of quality information.

Accurate and timely communication is also needed within countries between the community, health centers, district management teams, and the provincial and national levels. The EMC teams have conducted assessments of the communication systems in 4 of the 17 countries in the WAB and in all the countries of the GLB (Appendix H). These assessments primarily aim at identifying the needs for basic equipment and related training in the most remote areas at high risk of epidemics.

Both EPR training and improvements in communication systems have resulted in better notification of disease under surveillance. At the time of this review, 11 countries in WAB and all four countries in GLB regularly send their Weekly Epidemiological Report to AFRO, and all of these but four by email (Appendix H). The quality of the data collection and management at the sub regional and regional levels is further discussed in section IV.A. (4) and V.

(3) Development of IDS plans

The adoption and the process of implementation of the Integrated Disease Surveillance strategy in the Africa region was discussed earlier in this report. The IDS strategy is very well accepted by the country counterparts of the EMC teams in the WAB and GLB. Once adopted by a country, the usual process is the preparation of an initial standardized assessment followed about 2 months later by the development of a plan of action. The initial assessment and the preparation of a plan of action have been completed in two countries, Tanzania and Uganda. The IDS assessment has been conducted in additional countries including Burkina Faso, D.R. Congo, Ghana, Mali, and Rwanda

***RESULT: In Uganda, the IDS assessment was done in March and the 5-year Plan of Action developed in May 2000. The broad involvement of the MOH and the support of the Institute of Public Health, CDC, and WHO made this a landmark event in public health in Uganda. An IDS committee is now in place and 10 districts have already been trained in the new surveillance system.

(4) Development of regional and sub regional databases

The detection and confirmation of outbreaks must be done at the District level. The main reason for collecting notification data at the regional and sub regional levels is to establish trends and to monitor the quality of the reporting system and the responses to epidemics. An example of the latter function occurred in 1999 when an increase in the number cases of cholera reported by Madagascar was observed at the DDC level. As cholera had not been reported in this country before, an appropriate response was initiated and monitored through intensive communications between the MOH, the WHO office and WHO/AFRO/DDC.

Data on the number of cases and deaths for selected diseases are available at DDC. Country-specific data before 1996 were lost during the AFRO move out of Brazzaville.[6] The most complete country-specific data appears to be for cholera and meningitis reported on a weekly basis. The numbers of cases and deaths are available by district from 1998 for meningitis and 1999 for cholera.

These notification data used to be sent directly to AFRO by each country, processed by the director of the EMC program, and sent to WHO/HQ. In the last year and a half, there has been a data manager at DDC and data managers (often funded by the Polio Eradication Program) covering each epidemiological block (the GLB is covered by the data manager of the East Africa EPI ICP team). The countries now send their notification data to the EMC teams who process and send them to DDC. The countries also send their reports directly to DDC. The DDC and the EMC teams prepare and send a feedback reports to all WRs.

A statistician who uses Epi-Info manages the notification data received by AFRO. This data manager receives and files the reports from the countries, enters the data, and produces reports in the form of standardized tables. These tables are sent to the WRs as feedback. There is no technical documentation of the structure, status, and quality of this database. Some simple indicators of timeliness and completeness often exist at various levels of the reporting channels, but none are systematically reported for monitoring progress in developing the quality of the EMC reporting system and databases.

[6] These previous data exist in WHO/HQ Geneva (see section V).

The IDS program is using the EPI 2000 software to develop regional, sub-regional and country databases that include components for EPI, laboratory, and surveillance data. The 19 IDS diseases will be entered by district on a monthly basis and on a weekly basis in case of epidemic. It is difficult to know when this new software will be available at the various levels of the surveillance system, from the district to the DDC levels.

A wealth of information on epidemics and responses can be found in the various STP and other regional, sub regional and country reports. No systematic collection of this type of data is made so far that would allow the establishment of trends in the number, duration, or any other characteristics of outbreaks.

B. Laboratory Strengthening

(1) Assessments of national laboratory capacity

Over the last few years, the WAB and GLB teams have conducted assessments of the laboratory capacity in all countries of their epidemiological blocks. These assessments typically lead to the development of an action plan and specific recommendations for equipment and supply. Eleven countries in WAB and 1 in GLB received some reagents and transport media on an ad hoc basis, but do not to meet the demand of these countries (Appendix H).

(2) Training

The laboratory specialists in the WAB and GLB developed technical guidelines in response to the lack of such reference documents. The WAB guideline in French covers transportation and diagnostic techniques to confirm epidemics of cholera, meningitis, and bacillary dysentery, as well as a section on the development of national laboratory networks. The GLB guideline is in English and covers all epidemic-prone diseases considered in the EMC program and other communicable diseases. These two guidelines appear to have been developed independently and without guidance from the laboratory unit at the level of WHO/AFRO/DDC. They are already used in certain countries.

In the WAB, the biologists of national reference laboratories from 8 countries received training from the EMC team. The laboratory technicians have subsequently been trained in 10 countries in the WAB, and supervised in 3 countries (Appendix H).

***RESULT: In Uganda, the GLB team and AMREF[7] assisted the MOH to assess the national laboratory capacity and will soon begin training for laboratory technicians in 12 districts.

***RESULT: During the cholera epidemic in 1994 in Guinea, all specimens were sent to Europe to confirm the epidemic. After the training of laboratory technicians in 1997, the laboratory confirmation of the 1998 and 1999 cholera outbreaks were done in country and in a timely manner.

***RESULT: In 1999 in Liberia, the confirmation of the sensibility of *Shigella Dysenteriae SD 1* to nalidixic acid was confirmed in the early stages of an outbreak of dysentery. This avoided the use of ciprofloxacine and decreased the risk of an early introduction of resistance to this antibiotic in West Africa.

[7] AMREF is a Ugandan and sub regional NGO with relevant laboratory expertise based on establishing close links between laboratory and clinical care. The AMREF office in Nairobi also has a reference/quality control role at the sub regional level.

(3) National laboratory networking

The WAB made significant advances in establishing formal national laboratory networks in 13 countries. In 8 of these countries, an executive order was signed by the Ministry of Health to set up the network of the main laboratories, and in the 5 remaining countries such protocols have been prepared but not yet signed (Appendix H).

***RESULT: In Uganda WHO and AMREF have assisted the MOH in developing a strategy to establish a national laboratory network and quality control mechanisms. The WHO office proposed to fund a national coordinator for 2 years to coordinate a large multidisciplinary team within the MOH, and then commit further support to this activity.

C. Epidemic Preparedness and Response

(1) Technical support for the development of national EPR plans

The WAB team assisted 10 countries and the GLB team 4, in the development of their national plan for EPR. In the WAB, an EPR plan exists in 8 countries, EPR security stocks in 9 countries, and a dedicated EPR line item in the MOH budget in 7 countries. These three indicators of preparedness are satisfied in 5 countries. By contrast, the 4 countries in the GLB have an EPR plan adopted, EPR security stocks available, and a dedicated EPR budget line. Epidemic management committees and rapid intervention units exist in 15 countries in the WAB and in the 4 countries of the GLB (Appendix H).

Information on the quality, quantity, and actual availability of these security stocks in countries is not available at the epidemiological block levels. This raises the question of how the EMC teams evaluate and monitor the needs for products to keep at the sub regional or regional level.

Many MOHs have budget lines dedicated to EPR and other emergencies, but it is usually for drugs or supplies rather than costs that must be covered in a timely manner for effective responses (transportation, per diem, social mobilization, etc.). Also, the budget line may exist and contain appropriate funds but not accessible when needed.

It is expected that as the EMC teams become more involved in IDS assessments and planning, the development of EPR plans will be addressed through this program.

***RESULT: In Uganda, EPR is an important component of the Health Sector Strategy, in which $500,000 is earmarked for both EPR and IDS activities. Additional emergency funds are included for logistics and supplies that appear to have been available when needed. Overall, 10 districts around Kampala have achieved a satisfactory level of preparedness because of the creation of Epidemic Surveillance Units in 1999 after the cholera outbreak. However, 10 other districts near conflict zones are still left behind while the others districts lie at intermediate levels of epidemic preparedness.

***RESULT: In Guinea, an EPR component was included in the National Health Plan in 1994, and revised in 2000. However, there is no commitment of resources at the central level other than those from donors (OMS, MSF, GTZ, etc). Budget lines for EPR exist but no funds were ever released. All stocks available are leftovers from previous epidemics, that is, do not correspond to estimates of needs in case of new epidemics.

(2) Technical assistance for outbreak investigation and evaluation

The WAB team provided technical assistance for the investigation of 13 outbreaks of 5 epidemic-prone diseases in 7 countries. Liberia and Sierra Leone received 4 and 2 visits, respectively, and this probably reflects the particular need of these two countries with disrupted public health infrastructures. The diseases most frequently investigated were cholera, meningitis, and dysentery (three times each). The GLB team conducted 7 outbreak investigations of 6 diseases in 5 countries (one investigation was conducted in Eastern Congo). The WAB team provided technical assistance for the evaluation of the response and management of 4 outbreaks of cholera and 3 outbreaks of meningitis, and the GLB for the evaluation of 2 outbreaks of cholera and 1 of malaria (Appendix H).

***RESULT: In Uganda, the GLB team assisted the MOH to evaluate responses to cholera epidemics that started in December 97 affecting 41 out of 45 districts. The responses at district and parish levels are made possible because due to an advanced decentralization process.

(3) Provision of EPR drugs, vaccines and other supplies

The WAB team was able to provide some EPR supplies to 8 countries and the GLB team to 2 (Appendix H). The WAB team ordered and received EPR supplies in 1998, but there is no clear policy and management plan for regular renewal and maintenance of the regional and sub regional stocks. The teams do not know if, when, or what they can order. The reviewers observed errors in the product delivered (large quantities of RPR for syphilis testing received by both blocks).

On several occasions, the EMC teams have not been able to respond to specific requests from countries facing epidemics because they lack the necessary products. The provision of drugs, vaccines, and other supplies in case of emergency is one of the functions of the epidemiological blocks as defined in the Protocols of Cooperation. The failure to provide these commodities create frustration and disappointment within the teams and among the country counterparts.

The WAB undertook a study of funding and management mechanisms of the emergency stocks in Burkina Faso and Mali (Tchicaya 1999). Similar studies can be replicated elsewhere to develop guidelines for countries and sub regional and regional levels of the program.

(4) Resource mobilization

The WAB team has submitted projects to and made contacts with SDR, ADB (through WR), UMOA, EU (through Epicentre), and IRCF. These efforts have not been followed by any funding or formal expression of interests so far.

D. Inter-country collaboration

Both epidemiological blocks developed and followed-up on Protocols of Cooperation between their Member States. Even though the implication of Ministers and high officials is one of the foundations of the WHO/AFRO EMC program, a signed protocol does not always mean that the implementation goes without political constraints.

The WAB team had organized several cross border meetings involving 5 countries. The GLB team organized meetings involving 4 countries, including the Democratic Republic of Congo (Appendix H).

IV. Recent trends in epidemic outbreaks

Given the multitude of activities of the EMC and IDS programs in the Africa region, it is reasonable to expect in the long run a decrease in the reported morbidity and mortality from epidemic-prone diseases. Specifically, given the focus of these programs on epidemic preparedness and response, such decrease would primarily result from a reduction in the duration, attack rate, and case-fatality of outbreaks of the targeted diseases. The present review was not intended to provide impact evaluation information, but its broad scope has elicited the authors to develop the following comments in that direction.

- As mentioned before, there is no systematic collection of data on outbreaks of the targeted diseases. Except for anecdotal information on specific outbreaks, there is therefore no data available so far to assess trends in the occurrence, duration, and case-fatality of outbreaks of specific epidemic-prone diseases. Given the focus of the EMC program on epidemic preparedness and response, section 6 includes a recommendation in this respect.

- Data on cases and deaths from epidemic-prone diseases from the notification system between countries and DDC provide information on trends in incidence and mortality of epidemic-prone diseases in the Africa region. However, improving surveillance of these diseases tends to increase the numbers of reported cases and deaths, and make any impact of the program difficult to detect. Also, when the surveillance improves, the number of mild cases typically increase more than the number of severe cases and deaths, and therefore the case fatality may decrease even with no improvement in case management.

- Given the seasonal variations of some epidemic-prone diseases, only data from the same period in the calendar year can be compared. This increases the period of observation needed to establish trends. Spontaneous multiple year variations or cycles must also be taken into account, and requires establishment of trends over even longer periods. This is typically the case for meningoccal meningitis for which 8-year cycles are often described. In the Southern Africa region, the 1997 evaluation of the multi-year Cholera and Dysentery Prevention and Control project concluded on a positive impact, but a major outbreak of epidemic dysentery occurred in the following years.

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The reviewers identified monitoring data on cholera and meningitis available at the DDC and HQ levels, and performed analyses to assess their quality and potential use in assessing trends. The DDC data were received in the form of various spreadsheets structured and formatted for visual examination. As mentioned earlier, DDC only has data for a few years after the move from Harare in 1996. The HQ data were downloaded from the WHO/EMC website[8] as part of the Report on Global Surveillance of Epidemic-prone Infectious Diseases (WHO/CDS/CSR/ISR/2000.1), also in spreadsheet formats. All the analyses and graphs were done with Excel. Some of the preliminary findings without discussion and conclusions are presented below.

Data on meningitis The HQ data covers the period 1966 to 1999 and include the annual numbers of cases by country, but not the deaths. Four out of the 18 countries in WAB reported 86% of the cases during 1995-99. Different countries each year reported the bulk of the cases. The DDC data include the annual number of cases and some data on the number of deaths by country. There are some discrepancies of various magnitudes with the number of cases in the HQ data.

[8] http://www.who.int/emc/surveill

Except for an outstanding peak in the number of cases in 1996, primarily due to Nigeria, no clear trends appear in the last two decades. Finally, DDC has weekly data on the number of cases and deaths but only Burkina Faso and Niger appeared to have good enough data for examining trends. The number of cases is available from 1997 to 2000, and shows one large peak in 1997 in Burkina Faso and one large peak in 2000 in Niger. The number of deaths is only available from 1999 to 2000. The case fatality is lower in Niger than in Burkina Faso for the two years, but remains the same in both countries from one year to the other.

Data on cholera. The HQ data for Africa as a whole show an increasing trend in the total number of cases from 1980 to 1998, and a decreasing trend in case fatality rate. Both observations can be explained at least partially by an increase in reporting. The data on deaths from cholera are not available by country. In WAB, nine out of the 18 countries reported 86% of the cases during 1994-98. Different countries each year report the bulk of the cases. In GLB, two countries (Tanzania and Uganda) reported 92% of the cases during 1994-98 (this analysis did not include the huge epidemic in Eastern DR Congo in 1994). Different countries each year report the bulk of the cases. AFRO data from 1997 to 1999 for the 10 most affected countries in WAB and data from 1998 and 1999 for GLB show on average no decrease in case fatality. Finally, weekly data on cases are available in 1999 and 2000 for 5 countries only and show clear outbreaks in Nigeria and Ghana in 1999.

V. Conclusion and recommendations

The EMC program and the epidemiological block approach are an effective mechanism for strengthening the capacity for epidemic preparedness and response in countries of the Africa region. The various protocols for co-operation signed by the Ministers of Health and of Interior of the countries in each epidemiological block provide an essential political framework to implement this program. The development of stronger national disease surveillance systems through the new IDS program will allow the EPR program to focus on the specific aspects of preparedness and response to epidemic-prone diseases.

In their few years of operations, the EMC teams in WAB and GLB have provided valuable technical assistance to many countries in epidemic preparedness and response: they have assessed national systems, established plans of action, conducted training, organized cross border meetings, strengthened laboratories, and facilitated communication within and between countries, and between countries and DDC and HQ.

There are results in terms of more timely and accurate information, existence of committees and emergency units at central, regional, and district levels, and improved detection, confirmation, and management of epidemics. The results are essentially sustainable, but their coverage is not fully assessed.

Countries face different types and levels of risks and are at different stages of epidemic preparedness and response, and their needs for the EMC program still need to be fully assessed.

With the understanding that various partners may support the implementation of the EMC program, the reviewers make the following recommendations to DDC:

A. Strengthen the capacity of the EMC teams

- *Improve the planning process of the EMC and IDS programs.* DDC should encourage the development of more detailed work plans by the EMC teams by coordinating their preparation, providing feedback on the proposed work plans, and following up on their implementation. These work plans should not be exclusively based on the Protocols of Cooperation and related Plans of Action since the EMC teams conduct activities other than those defined in this context. The EMC team work plans should include explicit links with objectives, results, and indicators included in DDC's BPOAs, the Plans of Action of the Protocols of Cooperation, or some 5-year EPR strategic plan for Africa (see C. below). Finally, these work plans should clearly delineate the roles and responsibilities of the EMC teams with respect to the EMC versus the IDS activities program.

- *Increase technical support by DDC and HQ*. This can be done through complete a technical briefing for each new EMC team member, regular visits of the EMC teams to the regional office for briefing and technical update (up to 10 days a year including a joint all- EMC planning meeting), formative supervisory visits of the EMC teams by DDC and HQ staff, feedback on technical reports and work plans from the EMC teams, etc.

- *Provide administrative and budget support for local operations of EMC teams*. This may include support for a secretary, transportation, small meetings and workshops, document generation and dissemination, office supplies, etc.

- *Improve contractual arrangements offered to EMC staff*. In particular, AFRO should find ways to avoid relying on successive 11-month contracts with long interruption between contracts.

- *Improve access for EMC teams to visit countries and sites of epidemics.* This can be done through faster clearances by WHO country offices and MOHs, in case of emergency (this could be included in the next protocols of cooperation); consider vehicles and drivers for EMC teams.

- *Consider rearranging the composition of the epidemiological blocks.* The Horn of Africa and Great Lakes blocks could be merged and the EMC teams based in Nairobi to create economies of scales and better coordination between the ICP teams. On the other hand, the WAB could be divided to ensure a better coverage of its 18 countries and 256 million population. This is a politically sensitive recommendation that should be addressed carefully.

- *Foster coordination and collaboration among ICP teams in the same blocks.* This can be done through joint reporting by all ICP teams, regular coordination and technical meetings within WHO offices hosting the ICP teams, annual meetings of WRs and ICP teams, joint country missions, etc.

- *Introduce an operations research component in the EMC program.* The EMC teams are in a unique position to identify EPR-specific problems and design operations research studies. Specific financial and human resources need to be allocated to such activities in order to take advantage of these opportunities.

B. Improve specific aspects of the main EMC strategies

For each of the four main EMC strategies as defined in the present report, the reviewers propose the following.

(1) Epidemiological surveillance

- *Conduct systematic analyses of the notification data collected in the epidemiological blocks and regional offices*. This type of work is necessary to validate the available data and to set reliable baseline indicators for development of these databases (timeliness, completeness, etc.) and for establishing epidemiological trends. Quality check analyses can identify common problems like the lack of distinction between missing values and zero reporting. Retroactive data collection or validation may be possible in certain countries to confirm or improve the completeness of the existing data. A full updated documentation of the structure and content of these databases will improve their management and quality.

- *Begin databases on outbreaks.* Country and sub-regional teams should report the number of outbreaks and related statistics by diseases. The EMC program should develop and promote standard report formats with well-defined indicators and data. The indicators should include epidemiological, managerial, and socioeconomic characteristics of the outbreaks. The EMC program should conduct a full review of all reports available at the regional and sub regional levels, then at the country levels to develop such report formats and provide baseline data. The EMC teams and the EMC and IDS staff at DDC should be fully involved in the review and development of an outbreak report format.

- *Continue efforts made in the WAB to develop a user-friendly software package to analyze the notification data at the country, sub-regional, or regional level.* This software (EpiView) was

designed to make use of the existing data and should be easily finalized. The IDS is currently developing a more comprehensive software package. It may not be finalized or implemented for a few years. It is expected to be first used at the health facility and district level rather than at the sub regional and regional levels.

(2) Laboratory strengthening

- *Develop and disseminate an EPR-specific strategy for strengthening laboratories at the district level and in all related networks while waiting full coverage of the laboratory aspects of the IDS program.* Among possible elements of such a strategy are the provision of a minimum EPR package for all districts; the provision of disease-specific kits on the basis of the local epidemiology; and the selection of a few reference laboratories in high-risk districts. EPR laboratory guidelines are needed to support such strategy, and those independently developed by WAB and GLB teams could be validated, compiled, and used for this purpose.

(3) Epidemic preparedness and response

- *Develop scores of risk of epidemics for use at the country and district levels*. Scores could be developed to include all epidemic-prone diseases and measure the overall risk of epidemics, while others could be disease-specific and related to specific interventions. These scores would help the EMC teams in prioritizing their epidemic preparedness and response efforts at the regional, sub regional level, and national levels. The use of indicators based on some burden of disease analysis including incidence, disability, mortality, and age at onset would improve comparison across diseases and settings.

- *Develop standard analyses of epidemic-prone diseases surveillance and notification data.* These analyses should relate to well-defined thresholds and criteria for action. Although the latest draft of IDS guidelines includes such analyses and definitions, it is likely that it will take a few more years to be adopted and implemented at country level. The EMC program should therefore already provide the relevant specialized units in each country with such instructions and with the related training and equipment, if some impact is expected in the coming years.

- *Prepare and disseminate sustainable emergency stock policies and management plans for the Africa region and each epidemiological block.* These plans should be based on clear and sound disease-specific EPR guidelines and managerial principles. They should specify the amount and range of products needed at the regional and sub regional levels, and the rationale for such recommendations. In addition to the immediate benefits in terms of reduced morbidity and mortality, the availability of such stocks can create opportunities to strengthen countries' capacity to establish sustainable emergency stock systems. The physical locations of the regional and sub regional contingency stocks should maximize the effective management and access by the EMC teams (various stocks currently exist in Dakar and Abidjan for the WAB, in Nairobi and Kampala for the GLB, and in Harare for both). It is recommended that the issue be addressed within the context of the implementation of a strategy on emergency stocks under epidemic preparedness and response. The Office of US Foreign Disaster Assistance (OFDA) could provide valuable support for the development and management of emergency stocks in the broader context of national disaster preparedness and response.

- *Continue the assessment of communication systems in countries and districts at high risk of epidemics.* These assessments should identify the areas where the lack of communication systems is a primary cause of delay in notification of epidemics and implementation of

effective response. The EMC program should then provide the necessary equipment and training to remove these constraints.

(4) Inter-country collaboration

- *Offer exchange visits, study-tours, and consulting opportunities to country nationals in charge of EPR.* This would promote inter-country collaboration and the development of regional expertise.

C. Engage in active resources mobilization for EPR

At least partially as a result of the EMC program, there is an increasing awareness of the feasibility to better control epidemic-prone diseases, and an increasing demand from Member States for technical and financial support for EPR activities. Given the limited resources currently available for the EMC program and the high expectations from Member States, DDC needs to increase its advocacy, collaboration and resource mobilization efforts. This can be done as follows.

- First, prepare a strong and specific 5-year EPR strategic plan for the Africa region that clearly identifies activities to be conducted at the regional, sub regional and country levels. This EPR plan should demonstrate the potential effectiveness of the proposed strategies on the basis of documented needs in the region and results achieved by the EMC program so far. The EPR plan should identify the most cost effective activities in the context of the other DDC program such IDS, EPI/Polio, and others. The EPR plan should prioritize epidemic-prone diseases, and for each of them among countries or even districts. The EPR plan should propose specific "expected results" and indicators that can be easily incorporated in the BPOA 2002-2003, Area of Work Communicable Disease Surveillance and Response.

- Then, develop a resource mobilization plan, including identification of potential donors and partners (WHO/HQ, World Bank, African Development Bank, European Union, bilateral cooperation agencies {USA, UK, France, Switzerland, Denmark, Sweden, Norway, Japan, etc}, CDC, IFRC, SDR, Gates Foundation, UNF, MSF/Epicentre, etc.), their potential areas of support, and their funding conditions and mechanisms.

- For current DDC partners, define the external support in relation to the BPOA 2000-2001, Area of Work Communicable Disease Surveillance and Response.

Appendix A. Selected documents

Renuka Bery. WHO/AFRO Dissemination Assessment. SARA Project, May 1999.

Lazare L., Duale S., Neira M., Tauxe R., Stamm JP. Review of the project for improving preparedness and response to cholera and other epidemic diarrheal diseases in southern Africa - April 1997. WHO Regional Office for Africa, January 1998.

WHO/AFRO BPOA 2000-2001

USAID grant agreements (1996, 1996-7, 1998, 1999-2003)

IDS regional strategy

Latest STP reports from WAB and GLB

Protocols of Cooperation for 5 Epidemiological Blocks

WHO, 1996. Emerging and other Communicable Diseases. Strategic Plan 1996-2000.

Anastase Tchicaya. La Sécurisation des fonds "Epidémies" dans les pays d'Afrique de l'Ouest. Les experiences du Burkina Faso et du Mali. Epicentre, 1999.

IDS 1998-99 Biennial Program Evaluation

EMC 1998-99 Biennial Program Evaluation

Appendix B. Travel itinerary

July 16	Arrival in Harare
July 17-19	Briefing at WHO/AFRO/DDC
July 20	Travel to Abidjan
July 21-22	Meetings with WAB team
July 23	Travel to Dakar and Conakry
July 24-25	Meetings with WHO/Guinea Representative and MOH
July 26	Site visit to Fodecariah
July 27	Meetings with WHO Representative, and MOH; Travel to Abidjan
July 28	Meetings with WAB team and WHO/Côte d'Ivoire Representative
July 29	Meetings with WAB team; travel to Nairobi
July 30	Travel to Entebbe
July 31	Meetings with GLB team and WHO/Uganda representative, MOH
August 1	Site visit to Rakai
August 2	Meetings with GLB team, MOH, IPH
August 3	Debriefing with WHO/Uganda representative

Appendix C.Persons met

Washington, USAID/AFR/SD
Ms. Mary Harvey, Child Survival Advisor
Dr. Mary Ettling, Infectious Disease/Malaria Advisor
Ms. Hannah Searing, Technical Advisor, Monitoring and Evaluation
Dr. Cornelia Davis, Infectious Diseases/Tuberculosis Advisor

Harare, WHO/AFRO/DDC
Dr. Antoine Kabore, Director
Dr. Alemu Wondimagegnehu, Medical Epidemiologist, IDS
Dr. Paul Lusamba-Dikassa. Medical Epidemiologist, EPR
Mr Corera Chouaibou, Data Manager

Abidjan, Côte d'Ivoire
Prof. Brehima Koumare, ICP/EMC/CI Laboratory Specialist
Dr. Amadou A. Yada, ICP/EMC/CI Epidemiologist
Dr. Mamadou Lamine Kone, ICP/EMC/CI Epidemiologist
Dr. Aby Sy, WHO Côte d'Ivoire Representative
Dr. Tano Bian, WHO Côte d'Ivoire, DCP
Dr. Jean Marie Bishi, Surveillance Epidemiologique, Division de la Santé Communautaire

Conakry and Fodecariah, Guinea
Dr. Christophe Alain-Brun, WR Guinea
Dr. Ibrahima Kan, WHO Epidemiologiste, EPI
Dr. Calbe, Cholera Treatment Center
Dr. Mohamed Sylla, Directeur General, Ministere de la Sante
Dr. Johanna L. Austin, Directrice Nationale
Dr. Mohamed Mahy Barry, Chef de la Division Prevention Lutte contre la Maladie
Dr. Lucien Prosper Haba, Chef de section, Urgences Epidemiques et des Catastrophes
Dr. Abdoulaye Ben Diallo, Charge d'Etudes, Urgences Epidemiques et des Catastrophes
Dr. Francoise Saive, Coordinatrice Medicale, MSF
Dr. Fode Moussa Doumbouya, Directeur de la Prefecture de Santé de Fodecariah
Dr. Sylla, Responsible de le Lutte contre les Maladies Transmissibles.
Mr. Diallo Amadou, Agent de Santé du Centre de Santé de Sikhoumou

Kampala and Rakai, Uganda
Dr. Oladapo Walker, WHO representative
Dr. Nestor Ndayimirije, ICP/EMC/GLB Epidemiologist
Dr. Isaac Wamola, ICP/EMC/GLB Laboratory Specialist
Dr. J. Kamugisha, Assistant Commissioner, Epidemiological Surveillance Division
Dr. Margaret Lamunu, IDS Technical Assistant
Dr. Peter Langi, Manager, Malaria control program
Dr. Kato, Medical Officer, Malaria control program
Dr. Nathan Bakyaita, Medical Officer, Malaria control program
Dr. Charles Mugero, Principal Medical Officer, Control of Diarrheal Diseases program, Child Health Division, Community Health Department, MOH
Dr. George Bagambisa, Rakai DDHS
Dr. Fred M. Wabwire, Director, Institute of Public Health, Makerere University
Dr. Souleymane Barry, Chief of Party, DISH Project, JHU/PCS

Appendix D. Exit reports from Guinea and Uganda visits

MISSION CONJOINTE
ORGANIZATION MONDIALE DE LA SANTE
ET
AGENCE AMERICAINE POUR LE DEVELOPEMENT INTERNATIONAL (USAID)
24-27 JUILLET 2000

DOCUMENTATION DE L'EXPERIENCE DE LA REPUBLIQUE DE GUINEE
EN
MATIERE D'ALERTE ET REPONSE AUX EPIDEMIES

CONTEXTE DE LA MISSION

DANS LE CADRE DU PARTENARIAT ETABLI ENTRE L'OMS ET L'USAID DEPUIS 1996 POUR ASSISTER LES PAYS DE LA REGION AFRICAINE A RENFORCER LES CAPACITES EN MATIERE DE SURVEILLANCE, D'ALERTE PRECOCE ET DE REPONSE AUX EPIDEMIES, IL A ETE DECIDE DE FAIRE UNE REVUE DES EFFORTS ACCOMPLIS A CES JOURS AFIN D'IDENTIFIER LES ACQUIS POSITIFS ET LES CONTRAINTES, ET DE FAIRE DES RECOMMENDATIONS POUR AMELIORER LES PROGRAMMES ET MOBILISER L'APPUI D'AUTRES PARTENAIRES.

LE DR. MARC DEBAY DE L'UNIVERSITE JOHNS HOPKINS ET LE DR. DUALE SAMBE DE L'UNIVERSITE TULANE ONT ETE DESIGNES POUR MENER UNE MISSION CONJOINTE DE L'OMS ET DE L'USAID DANS QUELQUES PAYS AFIN APPRECIER L'ETAT DE LA MISE EN OEUVRE DES PROCOTOLES DE COOPERATION SOUS REGIONALE POUR LA LUTTE CONTRE LES EPIDEMIES. LA GUINEE ET LA COTE D'IVOIRE ONT ETE CHOISIES POUR LA REVUE EN AFRIQUE DE L'OUEST.

OBJECTIFS

- DOCUMENTER L'EXPERIENCE DE LA REPUBLIQUE DE GUINEE DANS LE CADRE DU PROTOCOLE REGIONALE EN MATIERE D'ALERTE ET DE RESPONSE AUX EPIDEMIES;

- DISCUTER DE LA CONTRIBUTION TECHNIQUE DE LOMS, PLUS SPECIALEMENT DE L'APPORT DE L' EQUIPE INTER-PAYS DU BLOC EPIDEMIOLOGIQUE DE L'AFRIQUE DE L'OUEST, AU DEVELOPMENT DU PROGRAMME DANS LA SOUS-REGION.

DEROULEMENT DE LA MISSION

DR. DEBAY ET DR. DUALE ONT VISITE LA REPUBLIQUE DE LA GUINEE DU 24 AU 27 JUILLET 2000. LA METHODOLOGIE UTILISEE PAR L'EQUIPE A CONSISTE A: A) DES ENTRETIENS AVEC LES AUTORITES ET RESPONSABLES SANITAIRES, LES AUTORITES ADMINISTRATIVES AU NIVEAU D'UNE PERFECTURE ET D'UNE SOUS-PERFECTURE, DES REPRESENTANTS DE L'OMS, MSF, ET USAID, B) UNE REVUE DES DOCUMENTS ET RAPPORTS PERTINENTS, ET C) DES VISITES SUR LE TERRAIN, PLUS SPECIALEMENT AU CENTRE DE TRAITEMENT DE DONKA, AU DEPOT CENTRAL PHARMACEUTIQUE, A LA PREFECTURE DE FORECARIAH ET AU CENTRE DE SANTE DE LA SOUS-PREFECTURE DE SHIKHOUROU.

RESUME DES CONSTATS

- LES AUTORITES ET REPONSABLES SANITAIRES DE LA GUINEE CONSIDERENT LA PREVENTION ET LA REPONSE AUX EPIDEMIES PARMIS LES PRIORIOTES DE SANTE;

- UN PLAN NATIONAL DU SECTEUR SANTE POUR LA GESTION DES URGENCES- EPIDEMIES ET CATASTROPHES EST EN ELABORATION;

- LE CHOLERA, LA MENINGITE, ET LES DIARRHEES SANGLANTES ONT SEVIS D'UNE FACON ENDEMO-EPIDEMIQUE EN GUINEE. DURANT LES ANNEES 1998 ET 1999, LES EPIDEMIES DE CHOLERA ONT TOUCHEES PRESQUE TOUTES LES PREFECTURES DE GUINEE;

- LA PERFECTURE DE FORECARIAH AVAIT BIEN GERE L'EPIDEMIE DE CHOLERA DE 1998, DEMONTRANT AINSI UN CERTAIN NIVEAU DE PREPARATION DES STRUCTURES DECENTRALISEES A LA REPONSE AUX EPIDEMIES.

- EN PLUS DE LA BILHARZIOSE, DE L'AMIBIASE, ET DE L'AMKYLOSTOMIASE, LA DYSENTERIE BACILLAIRE VIENT D'ETRE IDENTIFIEE COMME UNE DES CAUSES DE LA HAUSSE DES DIARRHEES SANGLANTES OBSERVEE DEPUIS 1999 DANS CERTAINES SOUS-PREFECTURES.

- L'ASPECT LABORATOIRE N'EST PAS ENCORE SUFFISAMMENT DEVELOPE POUR SOUTENIR LA SURVEILLANCE ET LA REPONSE AUX EPIDEMIES.

- LE SYSTEME DE GESTION DES STOCKS STRATEGIQUES DES PRODUITS ET MEDICAMENTS POUR LA REPONSE AUX EPIDEMIES EST FAIBLE.

- UN CERTAIN NOMBRE DU PERSONNEL DE LA SANTE A TOUS LES NIVEAUX SONT FORMES EN MATIERE DE SURVEILLANCE ET REPONSE AUX EPIDEMIES.

- LA MISE EN PLACE DES RADIOS V.H.F DANS LES PREFECTURES ET QUELQUES SOUS-PREFECTURES FACILITENT LA COMMUNICATION AVEC LE NIVEAU CENTRAL.

- LA SUPERVISION ET LE CONTROLE DE QUALITE DES DONNEES EPIDEMIOLOGIQUES SONT A RENFORCER.

- L'OMS, MSF, GTZ, ACDI-CCID, JICA, UNION EUROPEENNE, ET LA BANQUE MONDIALE SONT PARMIS LES PARTENAIRES DU GOUVERNEMENT GUINEEN DANS LA GESTION EPIDEMIES.

- L'EQUIPE INTER-PAYS DE L'OMS A EFFECTUE UN CERTAIN NOMBRE DE MISSIONS D'APPUI TECHNIQUE POUR LA FORMATION DU PERSONNEL ET L'INVESTIGATION DES EPIDEMIES EN GUINEE.

RECOMMENDATIONS

- **$** FINALIZER ET PROMOUVOIR L'ADOPTION D'UN PLAN NATIONAL DE GESTION DES URGENCES - EPIDEMIES ET CATATROPHES. L'APPUI TECHNIQUE DE L'OMS PEUT ETRE CONSIDERE POUR SOUTENIR LE PROCESSUS DE FINALIZATION.

- **$** RENFORCER LE RESEAU DE LABORATOIRE POUR SOUTENIR LA SURVEILLANCE EPIDEMIOLOGIQUE ET LA CONFIRMATION DES EPIDEMIES. L'APPUI DE L'EQUIPE INTER-PAYS DE L'OMS PEUT ETRE SOLLICITE POUR SOUTENIR CET EFFORT.

- **$** AMELIORER LE SYSTEME DE GESTION DES STOCKS STRATEGIQUES EN CONSIDERANT NOTAMMENT LA POSSIBILITE DE RENFORCER LE SYSTEME DES MEDICAMENTS ESSENTIELS POUR FAIRE FACE AUX ENDEMO - EPIDEMIES.

- **$** CONTINUER L'EFFORT DE FORMATION DU PERSONNEL DE SANTE (PUBLIC ET PRIVE) ET AMELIORER LE SYSTEME DE COLLECTE ET GESTION DES DONNEES DE SURVEILLANCE EPIDEMILOGIQUE ET DE LA REPONSE AUX EPIDEMIES.

- **$** CONTINUER LE PLAIDOYER AU PRES DES AUTORITES POLITIQUES ET DES PARTENAIRES POUR ALLOUER DES RESSOURCES ADEQUATES A LA SURVEILLANCE ET LA REPONSE RAPIDE AUX EPIDEMIES. LES STRUCTURES CLES DE LA GESTION DU SYSTEME D'ALERTE PRECOCE ET DE LA RESPONSE AUX EPIDEMIES (EX. DIVISION PLM/SECTION URGENCES-EPIDEMIES ET CATASTROPHES ET LES DIRECTIONS DES PREFECTURES SANITAIRES) DOIVENT ETRE CIBLEES EN PRIORITE POUR UNE DOTATION EN RESOURCES ADEQUATES. L'APPUI TECHNIQUE DE L'OMS PEUT ETRE UTILE POUR FACILITER LE DIALOGUE ENTRE LES PARTENAIRES ET SOUTENIR L'EFFORT DE MOBILZATION DES RESOURCES EN VUE DE LA MISE EN OEUVRE DU PLAN.

CONCLUSION

UN CERTAIN NOMBRE DES PARTENAIRES ASSISTENT LA GUINEE POUR GERER LES EPIDEMIES QUAND ELLES SE DECLARENT. ETANT DONNE QUE LES PRINCIPALES EPIDEMIES SEVISSENT D'UNE FACON ENDEMO-EPIDEMIQUE, IL EST UTILE QU'UN CADRE SOIT DEVELOPPE POUR FACILITER LA MOBILISATION DES RESOURCES POUR SOUTENIR LA SURVEILLANCE, LE SYSTEME D'ALERTE ET LA GESTION DES EPIDEMIES. LES LECONS TIREES DE L'EXPERIENCE DE LA GUINEE SERONT UTILES POUR LA FORMULATION DES RECOMMENDATIONS A L'OMS ET SES PARTENAIRES POUR LES EFFORTS FUTURS DE DEVELOPMENT DES CAPACITES POUR LA GESTION DES EPIDEMIES DANS LA REGION AFRICAINE.

JOINT REVIEW

WORLD HEALTH ORGANIZATION REGIONAL OFFICE FOR AFRICA (WHO/AFRO)
AND
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT BUREAU FOR AFRICA (USAID)
JULY 30 - AUGUST 3 2000

DOCUMENTATION OF THE EPIDEMIC PREPAREDNESS AND RESPONSE EFFORTS IN THE REPUBLIC OF UGANDA

Summary Report

CONTEXT

For several years, the monitoring, reporting, and response to outbreaks of epidemic-prone diseases such as cholera, dysentery, measles, meningitis, plague, viral hemorrhagic fever, yellow fever, and malaria have been ad hoc and short-term in nature. In 1996, USAID joined WHO/AFRO and other partners to step up efforts for systemic tracking, reporting, and strengthened epidemic preparedness and response (EPR) in the African region.

A WHO/AFRO sponsored regional strategy for epidemic preparedness and response has been adopted by all African member states as a policy framework for cooperation for epidemiological surveillance and response to epidemics. A protocol for co-operation was signed by the Ministers of Health and of Interior of 18 West African countries to reinforce sub-regional co-operation for improved disease surveillance and control of epidemics in 1996. Subsequently, similar sub-regional protocols were signed in Kigali (1997), in Addis-Ababa and Libreville (1998), and in Harare in 1999.

After almost 4 years of implementation of the first protocol, WHO/AFRO and USAID have decided to organize a joint mission to document the experiences and share them widely with all partners and stakeholders, and to advocate for sustained effort for improving epidemic preparedness and reponse in the African region. Through the USAID-funded Support for Analysis and Research in Africa (SARA) Project, the technical services of Dr. Marc Debay of Johns Hopkins School of Public Health and Dr. Sambe Duale of the Tulane University School of Public Health and Tropical Medicine, were sought for the mission. Two countries were selected for site visits during the mission - Guinea for West Africa and Uganda for the Great Lakes region.

OBJECTIVES OF THE MISSION:

- To document the Republic of Uganda's efforts in implementing the Protocol of Cooperation for the Prevention and Control of Epidemics and Polio Eradication in the Great Lakes Region;

- To review the technical assistance provided by WHO, especially the support of the EMC surveillance, epidemic preparedness and response.

DOCUMENTATION METHOD:

Dr. Debay and Dr. Duale were on mission in Uganda from July 29 to August 3, 2000. The following methods were used by the team during the mission: a) meetings and discussions with

health officials and program managers, WHO Representative and selected staff, and other stakeholders at the Institute of Public Health, AMREF, DISH Project, and USAID; b) a review of documents and relevant reports; and c) field visit to the Rakai District, especially in the sub-district of Kyotera where an upsurge of malaria has been observed.

SUMMARY OF MAIN FINDINGS:

- Epidemic preparedness and response is one of the main elements of the disease prevention and control component of the Health Sector Strategy being finalized by the Uganda Government Ministry of Health.

- Uganda has experienced outbreaks of cholera, malaria , meningitis, measles, typhus, and dysentery in the last three years (e.g.; since the signing of the Great Lakes Protocol). Outbreaks of cholera and malaria are still raging in selected districts. The responses to past and current epidemics are not comprehensively documented.

- Major efforts have been underway to strengthen the capacity of decentralized health districts in surveillance, preparedness and response to epidemic outbreaks. Health personnel at different levels of the district health system have been trained in epidemic preparedness and response. A number of districts have been able to manage cholera and malaria outbreaks. Districts and health centers at levels III and IV are using surveillance data to plot graphs and to take action when abnormal trends are noticed. Comprehensive disease-specific guidelines for managing outbreaks (e.g. how to manage malaria outbreak) still need to be developed and made available to district teams.

- Under the coordination of the Epidemiological Surveillance Division of the Disease Control Department of the MOH, an assessment of disease surveillance systems has been conducted and efforts are underway for the implementation of an integrated disease surveillance system. WHO and CDC, with grant from USAID, are supporting the process. The Italian cooperation has been approached for additional support.

- The laboratory element of support to surveillance and epidemic management is very weak. With technical and financial support from WHO, AMREF, a regional African NGO, has assisted the MOH to conduct an assessment of the laboratory situation in the country and develop recommendations for improving the laboratory network and institute a quality control mechanism.

- WHO is a key technical partner of the Uganda MOH in support of the implementation of the IDS and the strengthening of capacity for epidemic preparedness and response. Support for communicable diseases surveillance and response is an area of work the WHO Biennal Plan of Action with the Government of Uganda.

- Dr. Nestor Ndayimirize, Epidemiologist, and Dr. Isaac Wamola, Laboratory Expert, of the WHO inter-country team for epidemic preparedness and response in the Great Lakes region have provided technical assistance to Uganda in the areas of outbreak investigation, IDS assessment and implementation process, laboratory assessment and networking establishment. In addition to logistical and administrative constraints, the insecure situation in many parts of the Great Lakes has handicapped the work of the inter-country team.

Recommendations:

- The team recommends continued advocacy and technical support by WHO, AMREF and other stakeholders to assist MOH in establishing a laboratory network in line with the advanced process of IDS implementation and the management of epidemic outbreaks. The WHO inter-country team technical assistance shall be considered to support this effort.

- MOH shall consider the development, production, and dissemination of a health district reference manual containing disease-specific guidelines for preparedness and response to the prevalent epidemic-prone diseases in Uganda. The WHO inter-country team technical assistance might be considered to support the implementation of this recommendation.

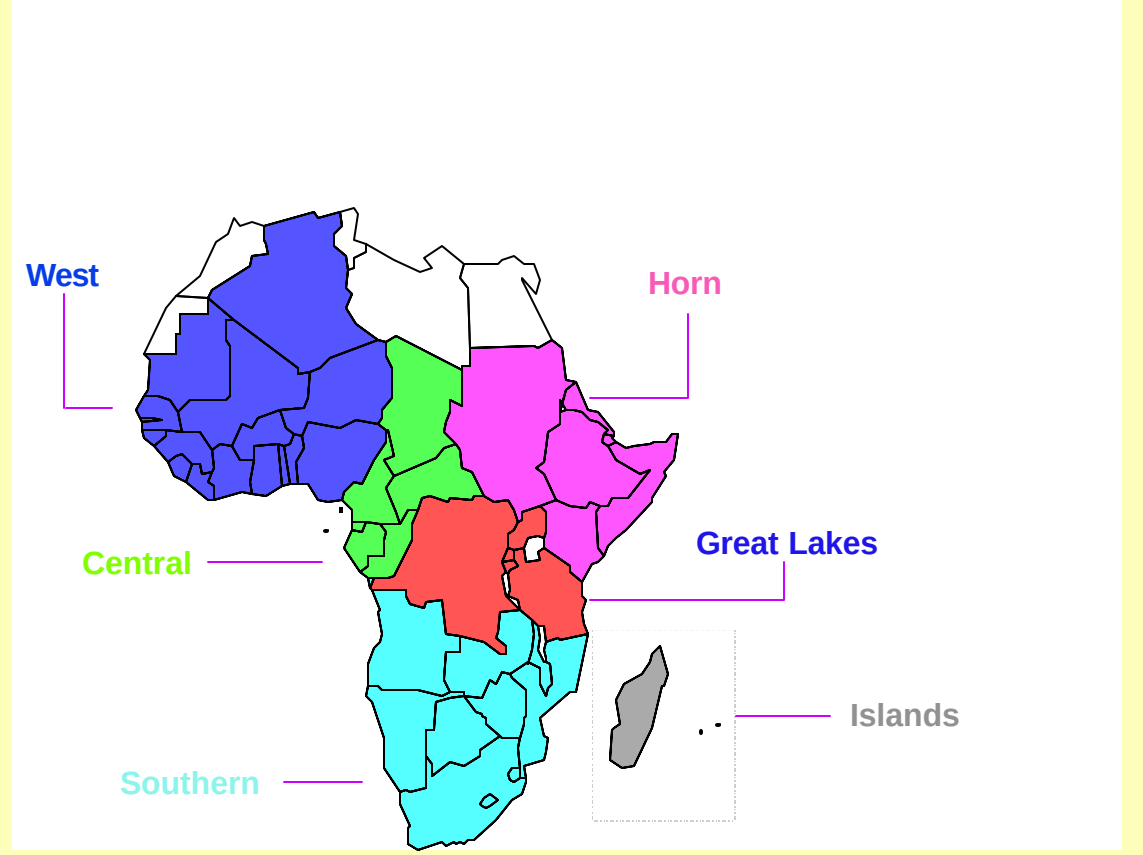
- Strengthen capacity at the Resource Center and the Epidemiological Surveillance Division of the MOH, at districts and sub-districts for better computer-assisted management of surveillance and epidemic response data. The data management can include the development of epidemic vulnerability profile of each district using surveillance information.

- To guide future efforts, there is a need to initiate a more systematic evaluation and documentation of districts' responses to selected epidemic outbreaks. Expertise from the Institute of Public Health of Makerere University and from the WHO inter-country can be of support for an evaluation of epidemic management.

Conclusion:

Uganda is far advanced in developing capacity at district level for improved surveillance, preparedness and response to epidemics. The technical and financial support that WHO has given the Government of Uganda and its partners, has contributed to progress made in this area. A number of lessons learned from the Uganda case study will guide the mission's recommendations for WHO and its partners on future dialogue and efforts to improve epidemic preparedness and response in the African region.

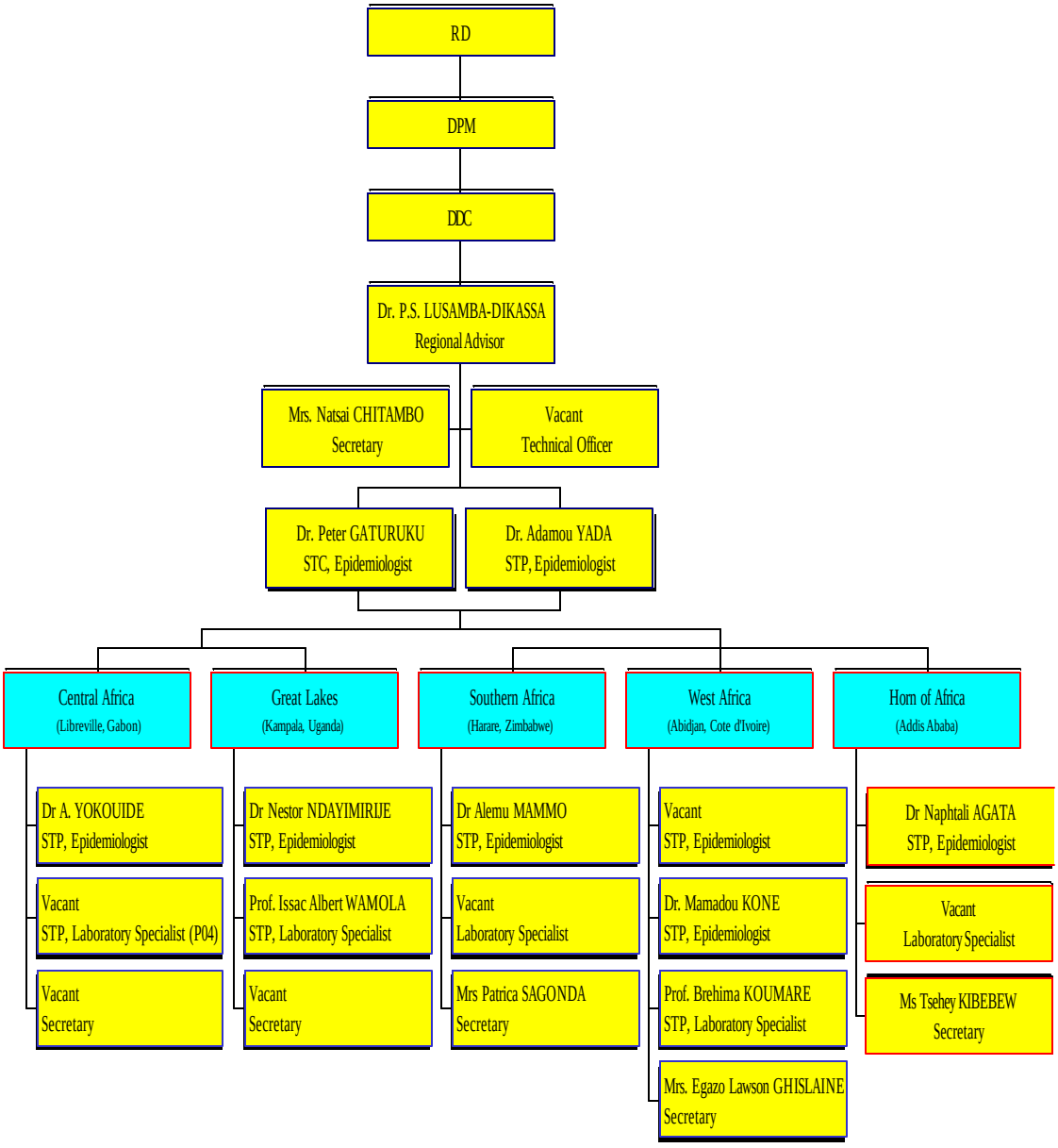
Appendix E. Map of EMC Epidemiological Blocks



Note:
1. Democratic Republic of Congo is now part of the Central Africa Block, except that some activities in the East of the country are conducted by the Great Lake Block.
2. Angola is now part of the Central Africa Block.

Appendix F. Organigram of EMC program

Organizational Chart EMC/AFRO



Appendix G. Terms of reference for the EMC teams

The sub-regional epidemic control support team is composed of two (2) epidemiologists and one laboratory specialist.

A teams leader is appointed among the epidemiologists.

The team operates under the administrative supervision of the WHO representative in the host country and under the technical and programmatic supervision and guidance of the Director of the Integrated Disease Control Programme of WHO/AFRO. The team is responsible for planning, programming, implementing and evaluating the sub-regional epidemic preparedness and control cooperation plan.

Following are the priority actions to be implemented by the team:

1. Epidemiological surveillance

- to support countries in the preparation of their epidemiological profile, including mapping indicating epidemic-prone zones;
- to support countries in the implementation of the regional strategy on integrated disease surveillance;
- to establish a network of national epidemiologists and laboratory specialist;
- to submit a quarterly report on progress in the implementation of the sub-regional for cooperation.

2. Epidemic preparedness and response

- to prepare an annual plan of work for the implementation of the sub-regional plan for cooperation;
- to support countries in the preparation and the implementation of national epidemic preparedness and response plans;
- to support countries in setting up epidemic management committees and rapid intervention teams;
- to support countries in setting up contingency stocks of drugs, vaccines, injection materials and sanitation supplies;
- to support countries in the rapid investigation of epidemic and rapid epidemic response.

3. Strengthening inter country cooperation

- To support countries in the organization plan review meetings;
- To organize sub-regional cooperation plan review meetings;
- To support countries in setting up a network of national and sud-regional reference laboratories;
- To identify/strengthen inter country/sub-regional expertise for rapid epidemic response.

4. Strengthening coordination among partners

- To advocate for WHO and country priorities for the surveillance and the control of epidemic prone disease;
- To share information on the progress and problems related to epidemic control

5. Resource mobilization

- To contribute to the preparation of research and intervention projects

6. Support to country epidemiologists

- To support epidemiological units in the Ministry of Health;
- To contribute to the updating of epidemiologists in new computer software used in epidemiology.

7. Training

- To support countries in launching basic training in epidemiology;
- To support countries in the follow-up and supervision of trained health staff.

Appendix H. Performance of the West Africa and Great Lakes EMC teams

Activity / Result	West Africa 1996-99																	Great Lakes 1998-99			
	Algeria	Benin	BurkinaFaso	Cape Verde	Côte d'Ivoire	Gambia	Ghana	Guinea	Guinea Bissau	Liberia	Mali	Mauritania	Niger	Nigeria	Senegal	Sierra Leone	Togo	Burundi	Rwanda	Tanzania	Uganda
Epidemiological surveillance																					
EPR training of trainers		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
At least 50% of districts with at least one staff trained in EPR	X	X	X		X	X			X		X	X	X	X	X			X	X	X	X
Staff trained supervised		X	X	X				X				X	X								X
Communication systems assessed				X				X				X			X			X	X	X	X
Weekly Epidemiological Report received (x=not email-based yet)		X	X	x			X	X	x	x	X	x	X				X	X	X	X	X
IDS Plan of Action Prepared																				X	X
IDS Assessment planned			X		X		X	X			X							X	X		
Laboratory strengthening																					
Assessment of laboratories	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Laboratory supplies received		X	X	X				X	X		X	X	X		X	X	X				X
Training of biologists of national reference laboratories	X	X	X					X			X		X		X		X				X
Training of laboratory technicians		X	X	X				X	X		X	X	X		X		X				
Laboratory technicians trained supervised		X						X							X						
Laboratory networks established (x=not signed yet)	X	X	x			X	X	x	X		X	x	X		x	X	X				

Activity / Result	West Africa 1996-99																	Great Lakes 1998-99			
	Algeria	**Benin**	**BurkinaFaso**	**Cape Verde**	**Côte d'Ivoire**	**Gambia**	**Ghana**	**Guinea**	**Guinea Bissau**	**Liberia**	**Mali**	**Mauritania**	**Niger**	**Nigeria**	**Senegal**	**Sierra Leone**	**Togo**	**Burundi**	**Rwanda**	**Tanzania**	**Uganda**
Epidemic preparedness and response																					
TA for national EPR plan		X	X	X					X	X	X	X	X		X		X	X	X	X	X
EPR Action Plan adopted			X	X			X				X	X	X		X		X	X	X	X	X
EPR security stocks exist		X	X	X			X	X			X		X		X		X	X	X	X	X
EPR budget line exist	X		X				X	(X)			x		X		X			X	X	X	X
TA for outbreak investigation and control																					
Cholera					X					X						X		X			X
Meningitis					X				X								X		X		
Shigellosis								X		X						X		X			
Malaria																		X			
Yellow Fever					X					X											
Viral Hemorragic fever										X		X									
Plague																				X	
TA for evaluation of outbreak response and management																					
Cholera		X											X				X				X
Meningitis		X						X					X		X						
Malaria																					X
EPR drugs supplied			X	X				X	X	X				X	X	X					X
Inter-country cooperation																					
Cross-border cooperation		X	X				X						X				X	X	X		X
Evaluation of cooperation protocols implementation		X		X													X				